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REMARKS

In view of the following discussion, the Applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. §102 or made obvious under the provisions of 35 U.S.C. §103. The Applicants believe that all of these claims are now in allowable form.

I. REJECTIONS OF CLAIMS 1-4, 8-18 AND 21-22 UNDER 35 U.S.C. §102

The Examiner rejected claims 1-4, 8-18 and 21-22 under 35 U.S.C. §102 as being anticipated by the Stine application (United States Patent Application Publication No. 2003/0033394, published February 13, 2003, hereinafter "Stine"). The Applicants respectfully traverse the rejection.

Primarily, the Applicants submit that Stine is not proper prior art against Applicants' application. Specifically, Applicants' application was filed on **December 20, 2001**. This **predates** the filing date of Stine (**March 21, 2002**). Since the effective filing date of the present application precedes the filing date of Stine, Stine is not prior art to Applicants' invention.

The Applicants note that Stine claims priority to United States Provisional Patent Application Serial No. 60/277,716, filed on March 21, 2001 (hereinafter referred to as "Stine provisional application"). Under 35 U.S.C. §102(e), the filing date of a provisional patent application may be the effective filing date of a United States patent claiming priority to such provisional patent application **only to the extent that such provisional patent application supports the subject matter used to make the rejection**. See MPEP §706.02(f). Thus, the Examiner must provide some evidence that the Stine provisional application supports the subject matter of the Stine published patent application used in the rejection. Specifically the Applicants question whether the Stine provisional application **contains the subject matter used by the Examiner in the rejection**.

Notably, there is no prohibition against the inclusion of subject matter in a non-provisional patent application that was not described in a prior provisional application to which the non-provisional application claims priority. That is, a non-provisional patent

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application may include new material not described in the provisional application. It is axiomatic that such new material does not receive the benefit of the provisional application. Applicants are not aware of any law or rule that states that all subject matter described in a non-provisional application is presumed to be described in a provisional application to which the non-provisional application claims priority. Thus, it is possible that the subject matter in the Stine published patent application relied on by the Examiner is not described in the Stine provisional application that pre-dates the Applicants' filing date. That is, the subject matter in the Stine published patent application relied on by the Examiner may constitute new material with respect to the Stine provisional application. In such a case, the cited subject matter would not constitute prior art to Applicants' invention. It should be noted that if the Examiner attempts to use the application date of the Stine provisional application, then the Examiner is technically applying a different reference against the present application. Namely, the Examiner must provide and cite the Stine provisional application against the present application.

Therefore, in order to set forth a prima facie case, the Examiner must provide evidence that the Stine provisional application supports the subject matter of the Stine published patent application used by the Examiner in the rejection.

Moreover, even assuming that Stine is proper prior art in relation to Applicants' invention (*i.e.*, the teachings of Stine are supported by the Stine provisional application), Stine still does not teach, show or suggest every limitation of the Applicants' claimed invention. Particularly, Applicants submit that Stine fails to teach, show or suggest the novel invention of determining a route for transmitting packets that mitigates the effects of a detected interference source in response to information related to the detected interference, as positively claimed by the Applicants in independent claims 1 and 21. In contrast, Stine at most teaches protocols for routing packets among nodes that share a communication channel. That is, Stine teaches a method for resolving access by a plurality of nodes to a common communication channel.

The portion of Stine that the Examiner cites to support the limitation of identifying an interference source simply discusses the results of a simulation that tested the

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effects of load on the capacity of Stine's protocol. Desirable results were those for which a signal-to-interference ratio between a source and a destination in the network met at least some threshold value (See, Stine, paragraphs [0031] – [0032]). Although the cited passage briefly makes mention of interference and its role in interpreting experimental results, the cited passage does not provide any actual teaching as to how a source of interference in a network is detected or identified.

Moreover, the portion of Stine that the Examiner cites to support the limitation of determining an alternate route in response to detected interference at most only describes known distance vector algorithms for determining routes among nodes in a network. In particular, the described algorithms aim to avoid creating routing loops and to support faster convergence to valid routes in response to link state changes (See, Stine, paragraph [0034]). The algorithms, as described, make no mention of the need to determine an alternate route in response to information related to detected interference in the network.

Stine thus fails to teach, show or suggest the novel invention of determining a route for transmitting packets that mitigates the effects of a detected interference source in response to information related to the detected interference, as positively claimed by the Applicants in independent claims 1 and 21. Applicants' independent claims 1 and 21 positively recite:

1. A method for use by nodes to route packet traffic through a multiple-hop wireless communications network, the method comprising:

detecting interference with packet-switched communications carried by radio frequency (RF) over the multiple-hop wireless communications network; and

adaptively determining, in response to information related to the detected interference, a route for transmitting packets through the multiple-hop wireless communications network that mitigates the effect of the interference on the packets. (Emphasis added)

21. A protocol stack for use by a node to communicate over a wireless communications network, the protocol stack comprising:

a radio frequency (RF) physical layer for detecting signals that are attempting to interfere with packet-switched communications at the node, the RF physical layer producing a signal that indicates that interference has been detected; and

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a network layer receiving the signal from the RF physical layer and producing an alternate route of packets through the wireless communications network in response to the signal. (Emphasis added)

Applicants' invention is directed to interference mitigation and adaptive routing in wireless ad-hoc packet-switched networks. As the popularity of wireless communication networks continues to increase, a variety of protocols have emerged, many of which operate in the same band of the radio frequency (RF) spectrum. Consequently, if two networks are placed in close proximity to each other and operate different protocols that compete for the same RF spectrum, these networks may interfere with each other. In addition, RF noise from other non-network sources (e.g., microwave ovens, cordless telephones) may also hinder overall network performance. In the case where a wireless network is ad-hoc (i.e., lacking a central point of communication), other forms of interference such as traffic introduced by unauthorized users can further degrade network performance.

In one embodiment, Applicants' invention teaches a method for interference mitigation and adaptive routing in wireless ad-hoc packet-switched networks. The method detects interference with packet switched communications carried by RF over a multiple-hop wireless communication network. The method then adapts a route for transmitting packets through the network such that the effect of the detected interference on the packets is mitigated. The adaptation of the route is made in response to some information related to the detected interference (e.g., location or identifying information about the source of the interference).

The limitation of determining a route for transmitting packets that mitigates the effects of a detected interference source in response to information related to the detected interference is positively claimed by the Applicants in independent claims 1 and 21, recited above. Stine fails to disclose or suggest this limitation. Thus, the Applicants respectfully submit that claims 1 and 21 fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder.

Dependent claims 2-4, 8-18 and 22 depend, either directly or indirectly, from claims 1 and 21 and recite additional features therefor. As such and for at least the

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same reasons set forth above, the Applicants submit that claims 2-4, 8-18 and 22 are also not anticipated by the teachings of Stine. Therefore, the Applicants submit that claims 2-4, 8-18 and 22 also fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

II. REJECTIONS OF CLAIMS 5-7 AND 19-20 UNDER 35 U.S.C. §103

A. Claims 5-7 and 20

The Examiner rejected claims 1-4, 8-18 and 21-22 under 35 U.S.C. §103(a) as being made obvious by the Stine application. The Applicants respectfully traverse the rejection.

As discussed above, Stine fails to disclose or suggest the novel invention of determining a route for transmitting packets that mitigates the effects of a detected interference source in response to information related to the detected interference, as positively claimed by the Applicants in independent claim 1. Accordingly, Independent claim 1 is not made obvious by the teachings of Stine.

Dependent claims 5-7 and 20 depend, either directly or indirectly, from claim 1 and recite additional features therefor. As such, and for at least the same reasons set forth above, the Applicants submit that claims 5-7 and 20 are also not made obvious by the teachings of Stine. Therefore, the Applicants submit that claims 5-7 and 20 fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

B. Claim 19

The Examiner rejected claim 19 under 35 U.S.C. §103(a) as being made obvious by the Stine application in view of the Ochiai patent (United States Patent No. 5,067,127, issued November 19, 1991, hereinafter "Ochiai"). The Applicants respectfully traverse the rejection.

As discussed above, Stine fails to disclose or suggest the novel invention of determining a route for transmitting packets that mitigates the effects of a detected interference source in response to information related to the detected interference, as positively claimed by the Applicants in independent claim 1. Ochiai does not bridge this

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gap in the teachings of Stine. Ochiai, at best, only teaches methods for reducing congestion in communication networks according to cost and priority criteria for certain routes and terminals. Accordingly, independent claim 1 is not made obvious by the teachings of Stine in view of Ochiai.

Dependent claim 19 depends from claim 1 and recites additional features therefor. As such, and for at least the same reasons set forth above, the Applicants submit that claim 19 is also not made obvious by the teachings of Stine in view of Ochiai. Therefore, the Applicants submit that claim 19 fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.


III. CONCLUSION

Thus, the Applicants submit that none of the presented claims is anticipated under the provisions of 35 U.S.C. §102 or made obvious under the provisions of 35 U.S.C. §103. Consequently, the Applicants believe that all of the presented claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

1/30/06


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